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hampered the science of astronomy, will be utterly demolished. All the special excellences which have been claimed for the speech and mental traits of the Indo-European stock, will be found exemplified in as high degree among some of the American nationalities. The singular opinion which has been maintained by writers of no mean distinction, that the descendants of a barbarous community of nomadic herdsmen who, four or five thousand years ago, wandered over the central plains of Asia and Europe, and, moving southward, gradually gained from Assyrian, Egyptian, and Dravidian sources the elements of culture, are endowed by nature with certain peculiar gifts of intellectual and moral greatness which entitle them to subdue, dominate, regulate, and, if they think proper, entirely suppress and exterminate any alien community that comes in their way, will be found to be as directly opposed to scientific truth as it is to the first principles of humanity and justice.

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THE LAFAYETTE GRAVELS.

PRESIDENT CHAMBERLIN, accompanied by Professor R. D. Salisbury, has spent the holidays in the south and southwest, examining the beds of gravel and sand called by Dr. Hilgard the "Orange Sand," but recently renamed by him "Lafayette." The same beds have also been called "Appomattox" by Mr. McGee. The party went first into the north-western part of Alabama and adjacent parts of Mississippi, where this formation, as well as an older one composed of very similar materials, is seen in great force. This older formation is the Tuscaloosa of the Alabama survey, equivalent to the Potomac of the Middle States. From Sheffield they went across to Columbus, Ga., where they were joined by Mr. W. J. McGee. At Columbus the same two formations are admirably exposed, as well as a third, a division of the Columbia formation of Mr. McGee, the "River Terrace" of the Alabama survey.

From Columbus the party came to Montgomery, where the Lafayette gravels and sands are to be seen in contact with the sands of the Eutaw division of the Cretaceous. From Montgomery they went to Tuscaloosa, where they were met by Dr. Smith and spent a day in examining the beautiful exposures of the Tuscaloosa and Lafayette formations in the railroad cuts at Cottdale, at Box Spring, and in the gullies of the town of Tuscaloosa. Sir Charles Lyell, in describing the geological formations at Tuscaloosa, says: "The lower beds of the horizontal Cretaceous series in contact with the inclined coal measures, consist of gravel, some of the quartzose pebbles being as large as hens' eggs, and they look like an ancient beach, as if the Cretaceous sea had terminated here, or shingle had accumulated near a shore."¹

Professor Tuomey afterwards showed that these pebble beds belonged to a much more recent formation, for he traced them southward and found them overlying the Tertiary rocks of the lower part of the State.²

As a matter of fact, both the Cretaceous (if the Tuscaloosa or Potomac shall prove to be Cretaceous, as seems most probable) and the Post-Eocene deposits are exposed in the gullies cut in the slopes of the hill towards the river in Tuscaloosa. All the large gravel belongs, however, in all probability, to the later formation, which we now call Lafayette, while the underlying stratified clays and cross-bedded sands are of older date, the clays containing many

plant remains which fix the age as probably Cretaceous. It thus seems that Sir Charles Lyell was mistaken in his identification of the gravel beds as Cretaceous, while Professor Tuomey, though undoubtedly correct in his classification of the gravel and overlying red loam, did not discriminate between these and the underlying laminated clays and cross-bedded sands, which were first clearly distinguished in Alabama by Harper and Winchell, and afterwards described in detail by Smith and Johnson in 1883 and following years.³

The age of these later gravels has lately become matter for difference of opinion among geologists. Professor Tuomey thought that they belonged to the Drift, though having but few points of resemblance to that formation at the north. Dr. Hilgard also has always considered them as belonging to the Quaternary, and, more or less remotely, of glacial origin. Messrs. McGee and Chamberlin, on the other hand, consider them much older than the Quaternary, and as probably Pliocene, because of their occurrence beneath beds which these geologists consider the very oldest of the Quaternary series. The vigorous manner in which the study of this formation is being pushed in widely-separated parts of the United States, leads us to hope that these differences of opinion will soon be reconciled.

From Tuscaloosa the party went westward to Vicksburg, Natchez, and other points on the great river, where the same gravel beds are exposed in contact with the overlying Port Hudson and Loess of unquestioned Quaternary age. From New Orleans the party will return to their homes.

E. A. S.

ARTIFICIAL LANGUAGES.

THE enthusiasm for the creation of new international languages was at its height a few years ago, but is by no means over. The too well-known *Volapük* is probably the best of them, and has set the stone rolling; it tries to combine the peculiar, especially phonetic, features of most European languages. It is doing good work as a medium of commercial correspondence, but probably will never be adopted as a medium for conversation, and through the agency of time is subjected, like other languages, to phonetic and many other changes. Some attempts dating from 1891 have adopted the principle of uniting the elements of the Romance languages only into a new form of speech. "Un lingua internazional" was composed by Julius Lott in Vienna (Springergasse 32); "Un lingue commun pro le cultivat naziones" by Dr. Alberto Liptay and "fixed up" for Spanish, French, and German speaking people; another, perhaps the most consistent in its principle, is "Nov Latin," by Dr. Rosa of Turin. A passage taken from Lott's "Suplent folie" reads as follows: "Le doktes inter si pote usare le historik ortografie, ma le homo de komercie ese saep in dubie en use de dublkonsonantes. Sin perditte pro le klarité noi pote tolerare le skripzion; gramatik pro grammatika, etc. In il question le majorité averé le decision." In reading this sort of jargon we cannot help asking ourselves, Would it not be greatly preferable to use plain French or Italian to make oneself understood?

Another more elaborate "Attempt towards an International Language" was written by Dr. Esperanto of Warsaw, Russia, and translated into English by Henry Phillips, Jun. (New York, Holt, 1889. 56 p. 8°). It combines radical elements of the Germanic and the Romance languages, and tends to put into reality the principle, that "a language

¹ "Travels in the United States, Second Visit," Vol. II., p. 68 (Harper & Bro.).

² "First Biennial Report on the Geology of Alabama," p. 160.

³ Bulletin No. 43, U. S. Geol. Surv., "On the Tertiary and Cretaceous Strata of the Tuscaloosa, Tombigbee, and Alabama Rivers."